tree is like that of a Christmas tree (except with slots for light). See Figure 1.

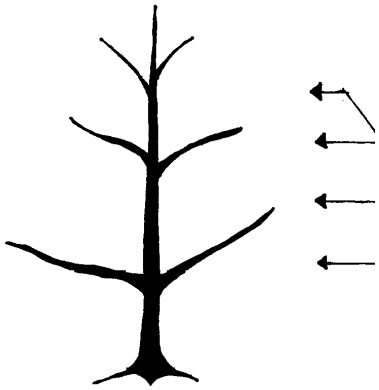

Figure 1. Side view of a central leader tree.

Newly Planted Trees - After early winter planting, wait until just before the buds start to grow in the spring to "head", or cut, the unbranched central leader to 36 inches above the soil surface to encourage new lateral branching. When new growth is 3 to 4 inches long, identify the most upright shoot that will continue to be the central leader. Leave it and remove all new shoots growing 3 to 4 inches immediately below this new terminal to prevent competition. This will also encourage lateral growth in the area 6 to 14 inches below the cut tip of the young tree. Branches that form 6 to 14 inches below the cut tip of the tree are less vigorous, less upright, and easier to train as productive scaffold limbs. When the lateral branches, or scaffold branches, are 3 to 6 inches long, they should be spread to a wider crotch angle that will provide a stronger framework for fruit production. Toothpicks or clothespins can be used to prop the young branches out to a 50 to 60 degree angle. This angle will slow vegetative growth, promote lateral branches, and allow the tree to initiate flowers and produce fruit sooner.

Scaffold Training - Improperly trained fruit trees have very upright branch angles, which result in excessive vigor and serious limb breakage under a heavy fruit load. Larger branches can be spread out using short wooden boards with a notch cut in each end for the branch to fit into. Hanging weights on the branch or tying it down with string wrapped loosely around the limb are other methods for spreading the branches. All upright growth from scaffold branches should be either pulled down to a horizontal position or removed when it is 3 to 4 inches long.

Dormant Pruning vs. Summer Pruning - Pruning the tree during the winter, while it is dormant, will invigorate the tree and cause it to grow and branch more the following season. To promote scaffold branch development, cut the central leader 20 to 28 inches above the highest usable scaffold whorl during the dormant season. It is best to do dormant pruning in late winter or early spring, after the risk of severe freeze is over. Be sure to remove any dead or diseased wood and dried apples at this time as well. After the tree resumes growth in the spring, continue to train the scaffold branches of the tree as you did the previous growing season. Select a new upright shoot to continue the central leader, and remove all new shoots 4 inches below it. Also select the branches to form another whorl of 4 to 5 scaffold branches. Prop all lateral branches out to a 50 to 60 degree angle.

Summer pruning will devigorate the tree and cause it to grow less in that growing season. Remove all undesirable branches directly across from one another on the central leader when they are 3 to 4 inches long. Also, select lateral branches that are spaced uniformly around the leader to prevent crowding as the limbs grow in diameter. Once the tree has filled its allotted space, lateral branches will need to be cut back to their desired length during the summer to devigorate the tree and prevent further growth, <u>not</u> during the dormant season. Ask your County Extension Center for information on the best way to prune your apple tree.

Fruit Thinning - Apple trees often set a heavier crop of fruit than the limbs can withstand. To ensure good fruit size, return bloom for the following year, and to prevent tree breakage, it is necessary to thin the fruit. Every apple blossom results in a bloom cluster of 5 to 6 blossoms. Apples should be thinned when they are about the size of a dime. Cut off enough fruit so that the remaining apples are spaced 4 to 6 inches apart, and leave only one fruit per cluster. It may seem like very few fruit remain, but you will harvest higher-quality fruit, potentially reduce insect and disease problems, and increase the chances for a full crop the next season.

Fertility - Adequate tree nutrition is essential for quality apple production. Determine the nutrient status of your soil by taking a soil sample prior to planting and each year thereafter at the same time of